Name: _____ Date: _____ Row: _____ Period: _____

NOTES SECTION 8.2: EXPONENTIAL DECAY

EXPONENTIAL DECAY FUNCTIONS

EXAMPLE 1

State whether $f(x)$ is an exponential growth or exponential decay function.

a) $f(x) = \frac{1}{3}(2)^{-x}$

b) $f(x) = 4\left(\frac{5}{8}\right)^{x}$

INVESTIGATION

EXAMPLE 2

Graph the function. State the domain, range, and asymptote.

a)

b)

EXAMPLE 3

Graph the function. State the domain, range, and asymptote.

EXPONENTIAL DECAY MODEL

EXAMPLE 4

There are 40,000 homes in your city. Each year _____ of the homes are expected to disconnect from septic systems and connect to the sewer system.

a) Write an exponential decay model for the number of homes that still use septic systems.

b) Use the model to estimate the number of homes using septic systems after _____ years.

YOUR TURN

A new car costs $23,000 and the value decreases by _____ each year. Write an exponential decay model for the car's value. Use the model to estimate the value after 3 years.